

Abstract

This thesis presents the first total synthesis of two jatrophane diterpenes from an *Euphorbia* species. Isolated in 1984 by Seip and Hecker, the two jatrophanes **C** and **D** were synthesized in 26 and 27 steps, respectively. Starting with the cyclopentane **A**, which was synthesized according to Helmboldt, 3-*epi*-Characiol (**B**) could be obtained in 23 steps (see Fig. A). A *B*-alkyl Suzuki–Miyaura cross-coupling for the formation of the C6/C7 bond as well as ring-closing metathesis for the closure of the twelve-membered ring at C12/C13 were utilized as key reactions.

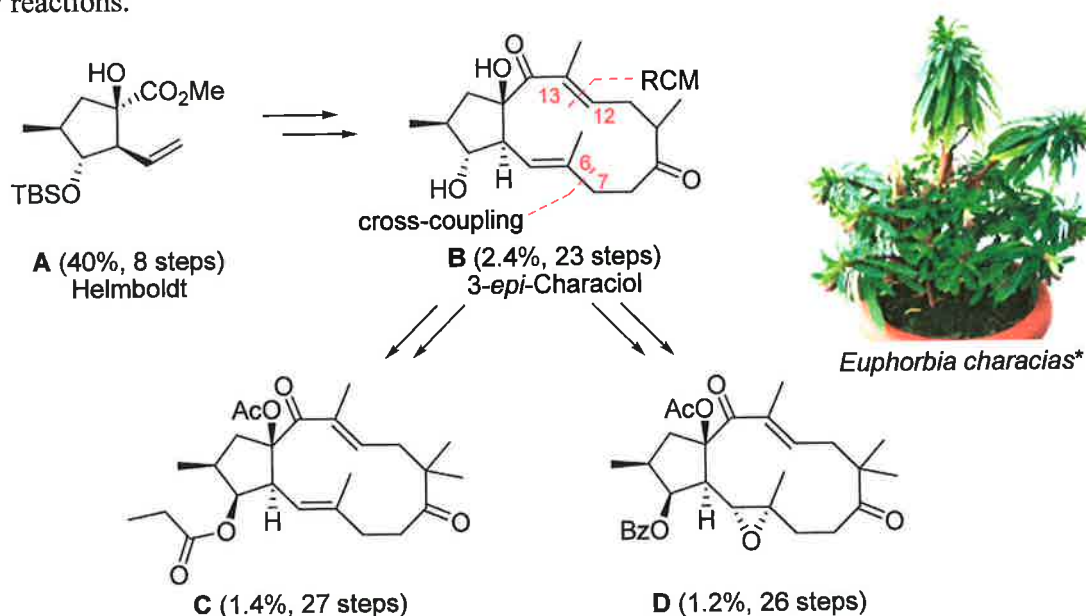


Fig. A: Synthesis of the two jatrophanes **C** and **D** from *E. characias*.

The second part of this thesis describes the synthesis of an important intermediate **E** in 24 steps which could be used for the total synthesis of the jatrophane diterpene Euphoheliosnoid **D** (**F**) from *Euphorbia helioscopia*. Crucial steps were a Wittig olefination for the generation of the C5/C6 double bond and an aldol addition for the formation of the C7/C8 bond (see Fig. B).

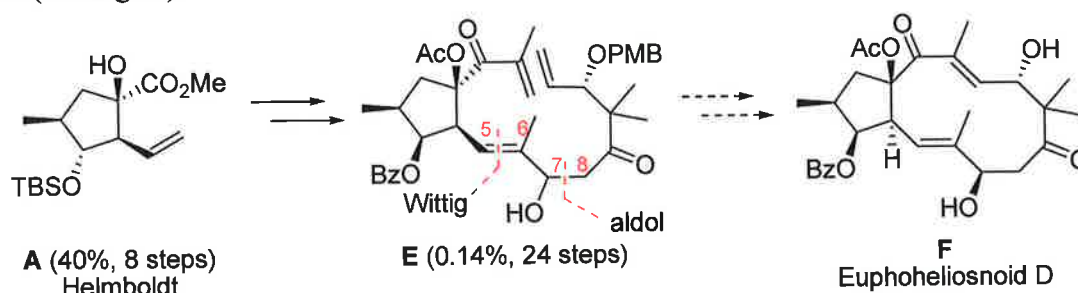


Fig. B: Advances in the total synthesis of Euphoheliosnoid **D** (**F**).

*Picture was recorded on the own balcony.